

Scenario 23 – Flow and Temperature Goals in Lower Feather River

- Goal - Develop consensus set of temperature and flow targets for Lower Feather River

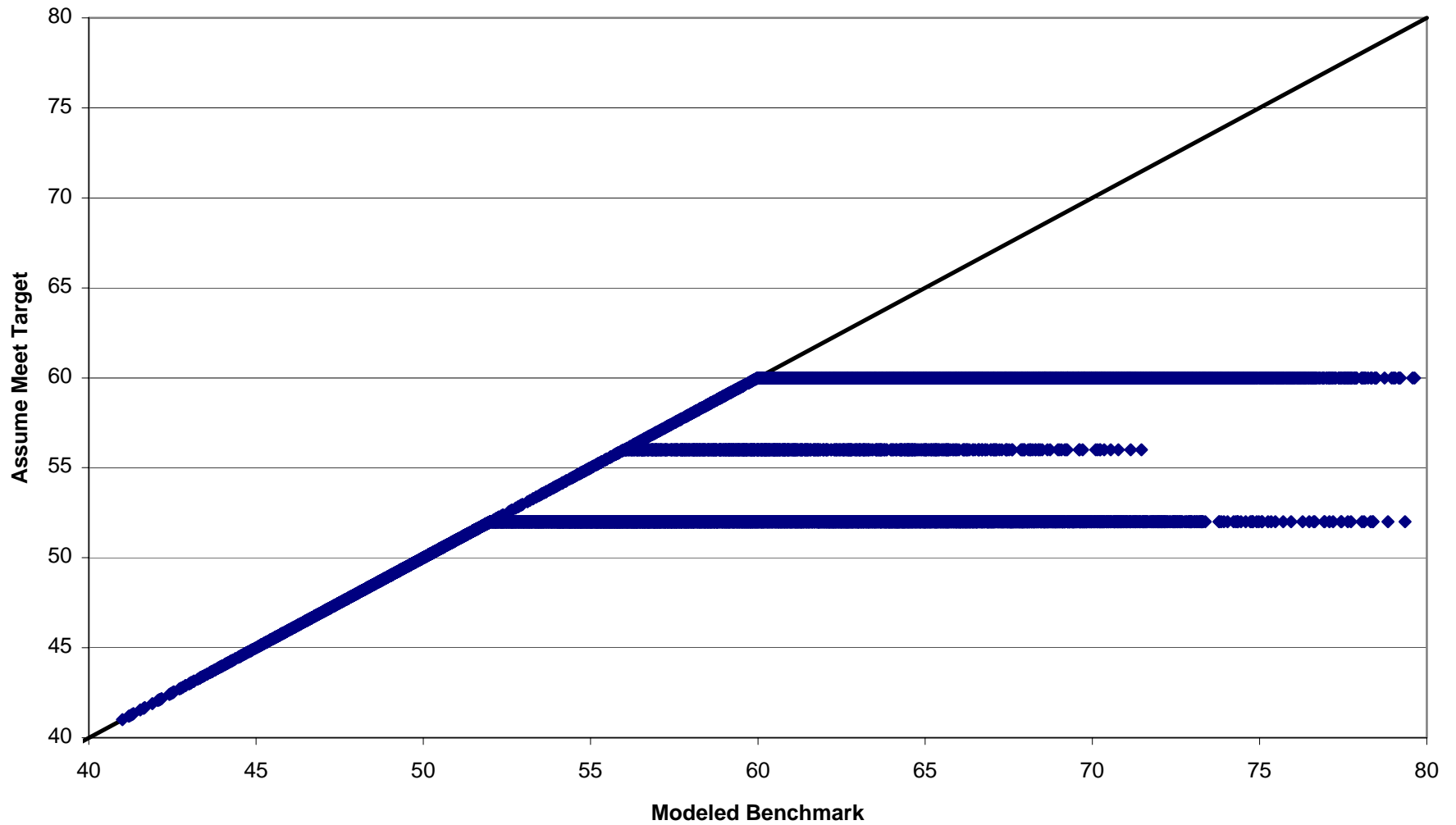
Current Progress

- Desktop analysis of potential of meeting temperature targets at Honcutt Creek
- Analysis of appropriate locations in Lower Feather River for temperature requirements (upstream vs. downstream control)
- Desktop analysis of Lower Feather River temperature regime under different temperature operation schemes

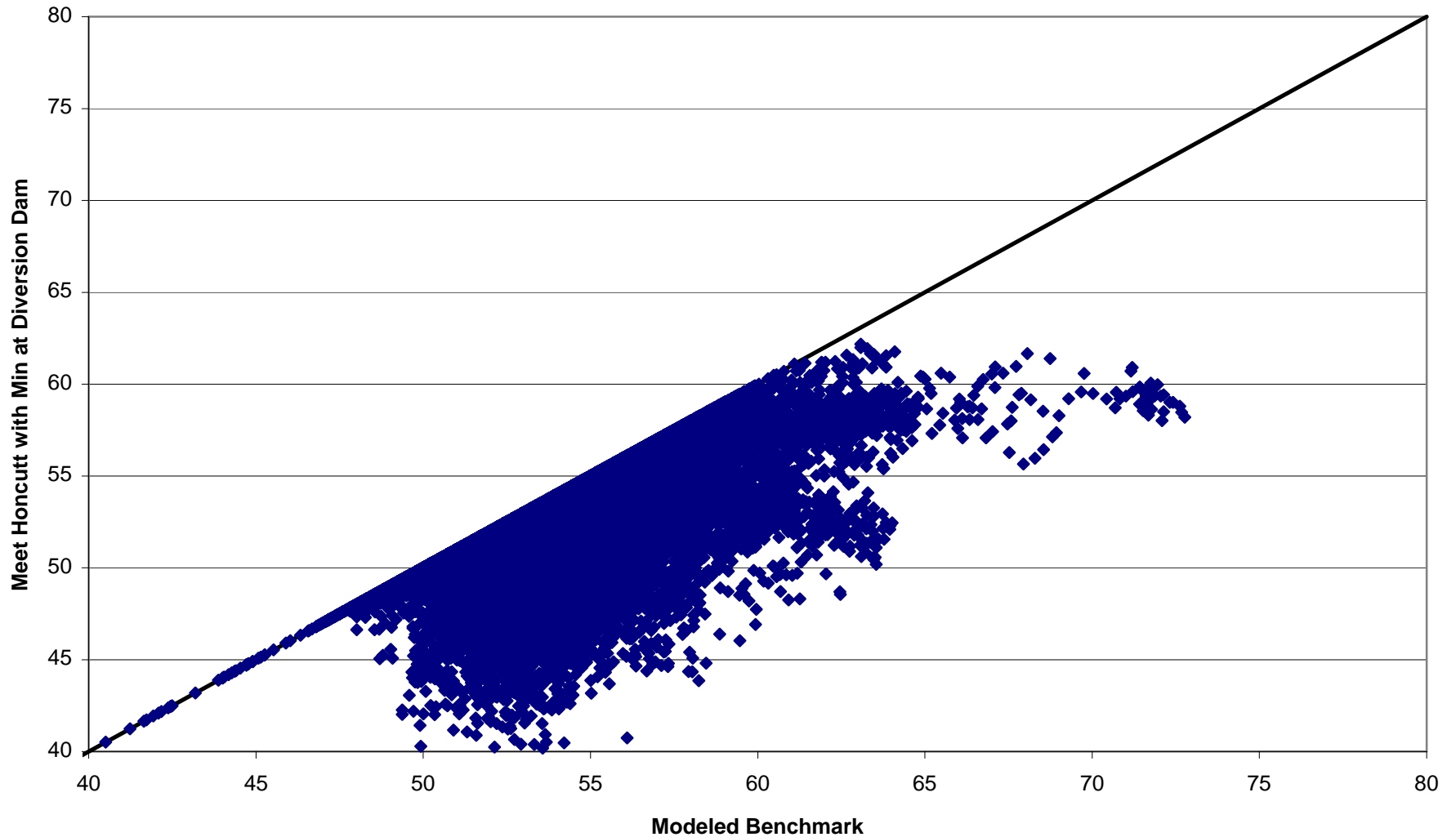
Analysis of potential to meet temperature targets at Honcutt Creek

- Use Temperature Target 1 values from Integrated Water Temperature and Instream Flow Targets
- Use temperature and flow data from current Existing Condition benchmark simulation
- Assume all flow down Low Flow Channel and same temperature change/mile in Low Flow Channel as in High Flow Channel
- Compute temperature at Honcutt Creek assuming targets are met
- Compute required temperature at Diversion Dam to give computed temperatures at Honcutt Creek
- Examine cold water pool in Oroville Reservoir

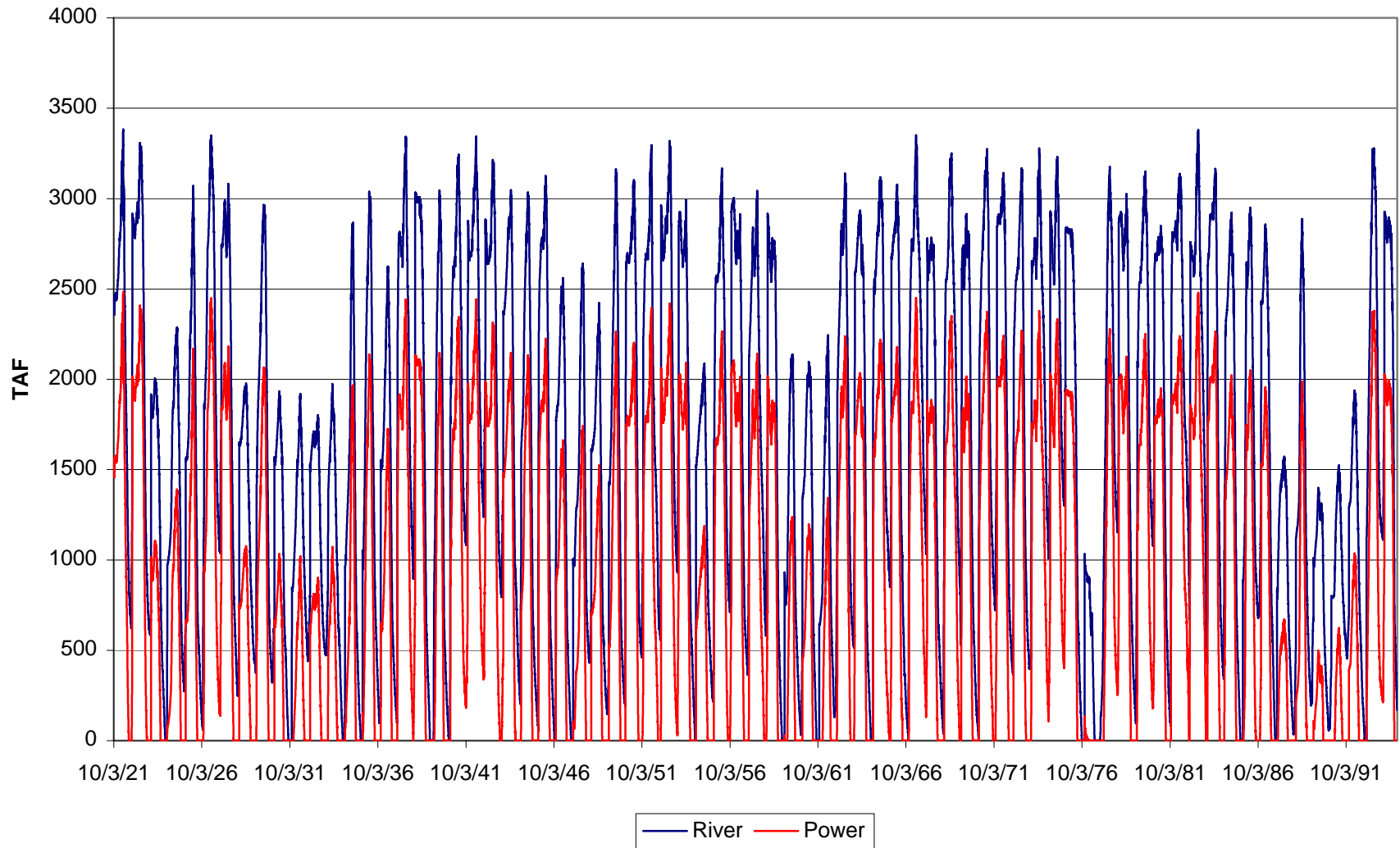
Modeled Feather River at Honcutt Creek Temperature Vs Temperature Targets



**Feather River at Diversion Dam Temperature Required To Meet Honcutt Target
All Flow In Low Flow Section**



Oroville Cold Water Pool
(Less than 15 Deg C (59 Deg F))



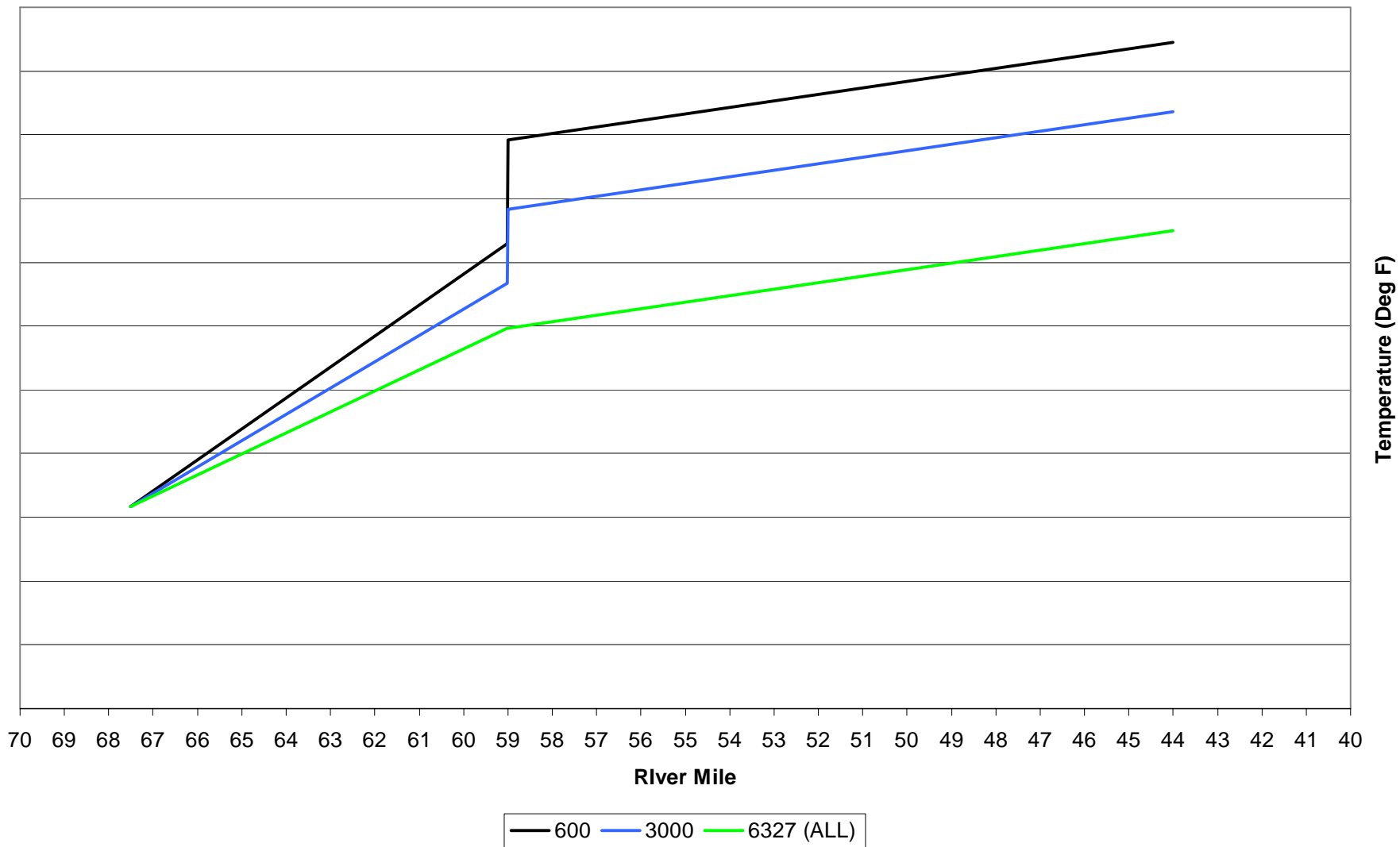
Conclusions about meeting Honcutt Creek targets

- Not enough cold water available to meet targets at Honcutt Creek
- Meeting targets at Honcut Creek would make upstream end of Low Flow Channel too cold for fishery

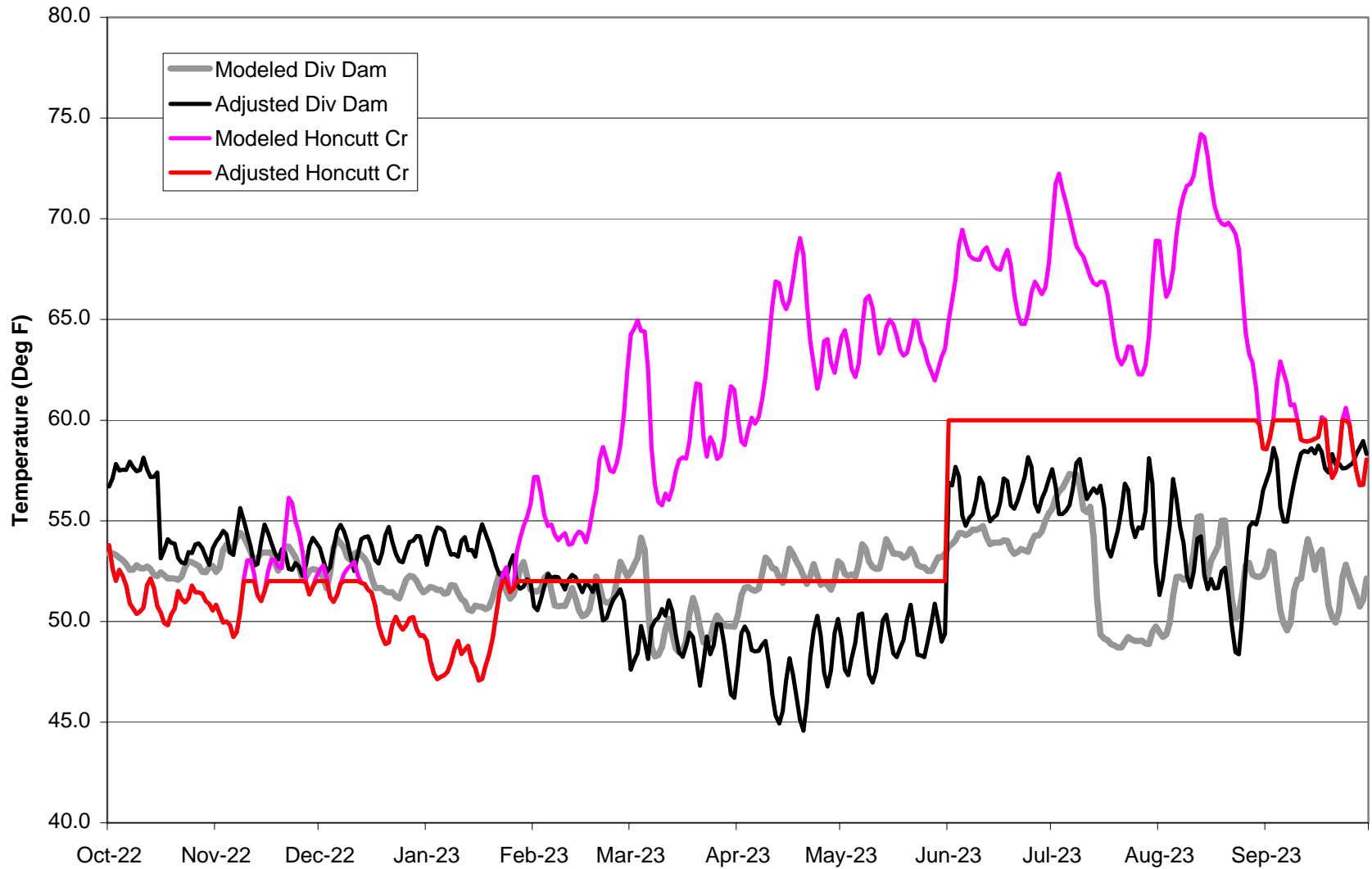
Location of Temperature Requirements in Lower Feather River

- Can only control temperature and flow at upstream end (Diversion Dam)
 - Temperature of release (Intake Stop logs, modify power operation, use of river valve, CWP and biology limited)
 - Proportion of total release to Low Flow channel (modify power operation)
 - Temperature and flow of Afterbay Release is a function of upstream control decision.

Potential Feather River Temperature Profile Under Different Low Flow Channel Flows



Comparison of Modeled Vs Targeted at Diversion Dam and Honcutt Creek



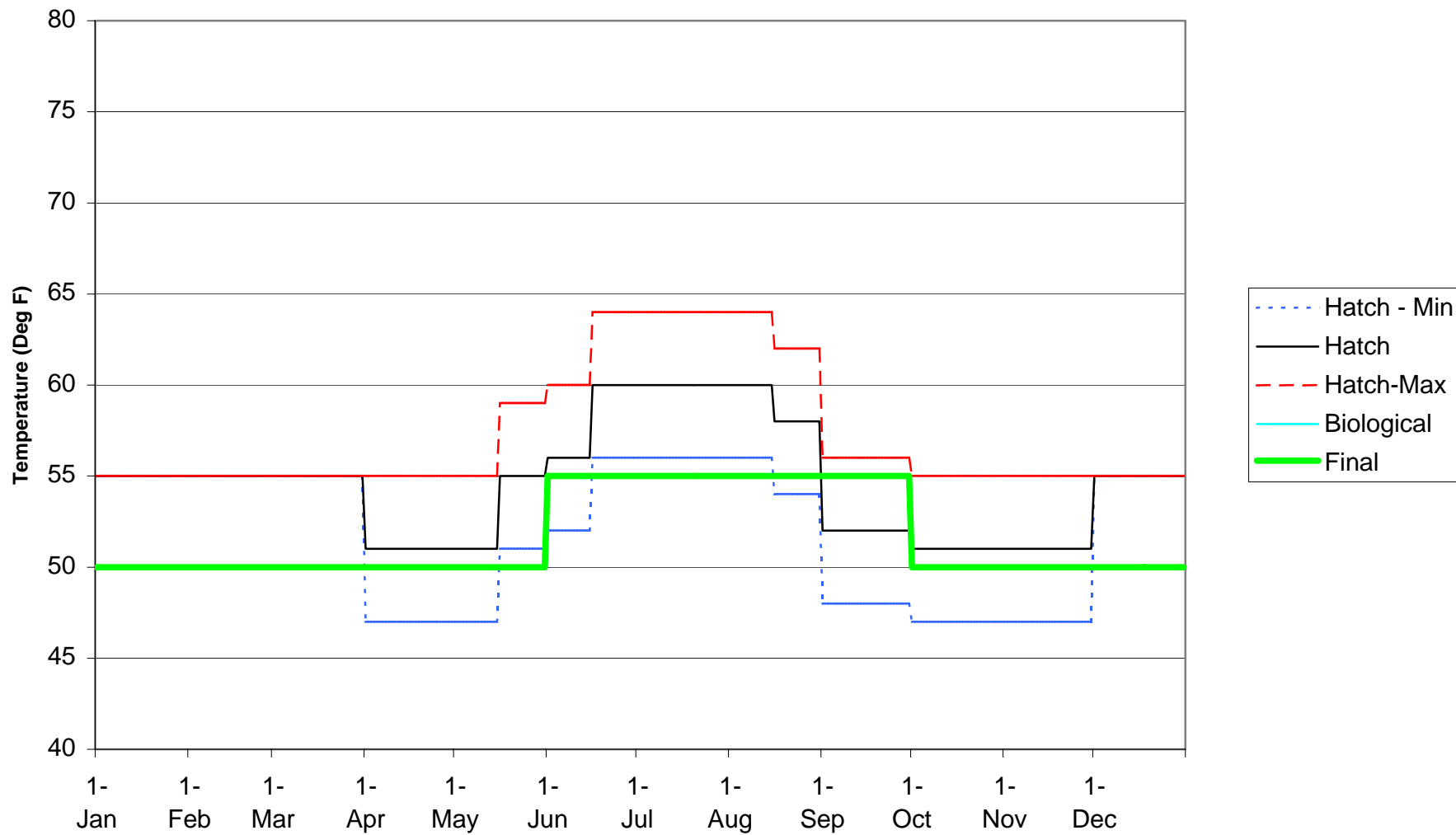
Conclusions on location for Temperature and Instream flow requirements

- Recommend setting instream flow and temperature requirements at the upstream end of the reach makes sense because:
 - Controls temperatures throughout Lower Feather River
 - Ensures that upstream end of reach is not too cold for fishery objectives
 - Simplifies cold water pool management over the year to meet fishery objectives
 - Improves temperatures throughout entire reach, risk of not meeting objectives is at far downstream end of reach

Initial Trial Upstream Control Values

- Set goal as cold as possible without concern of CWP availability
- Do not go below 50-55 degrees
- Minimum of hatchery and lower limit but not less than lower limit

Feather River At Diversion Dam Temperature Targets



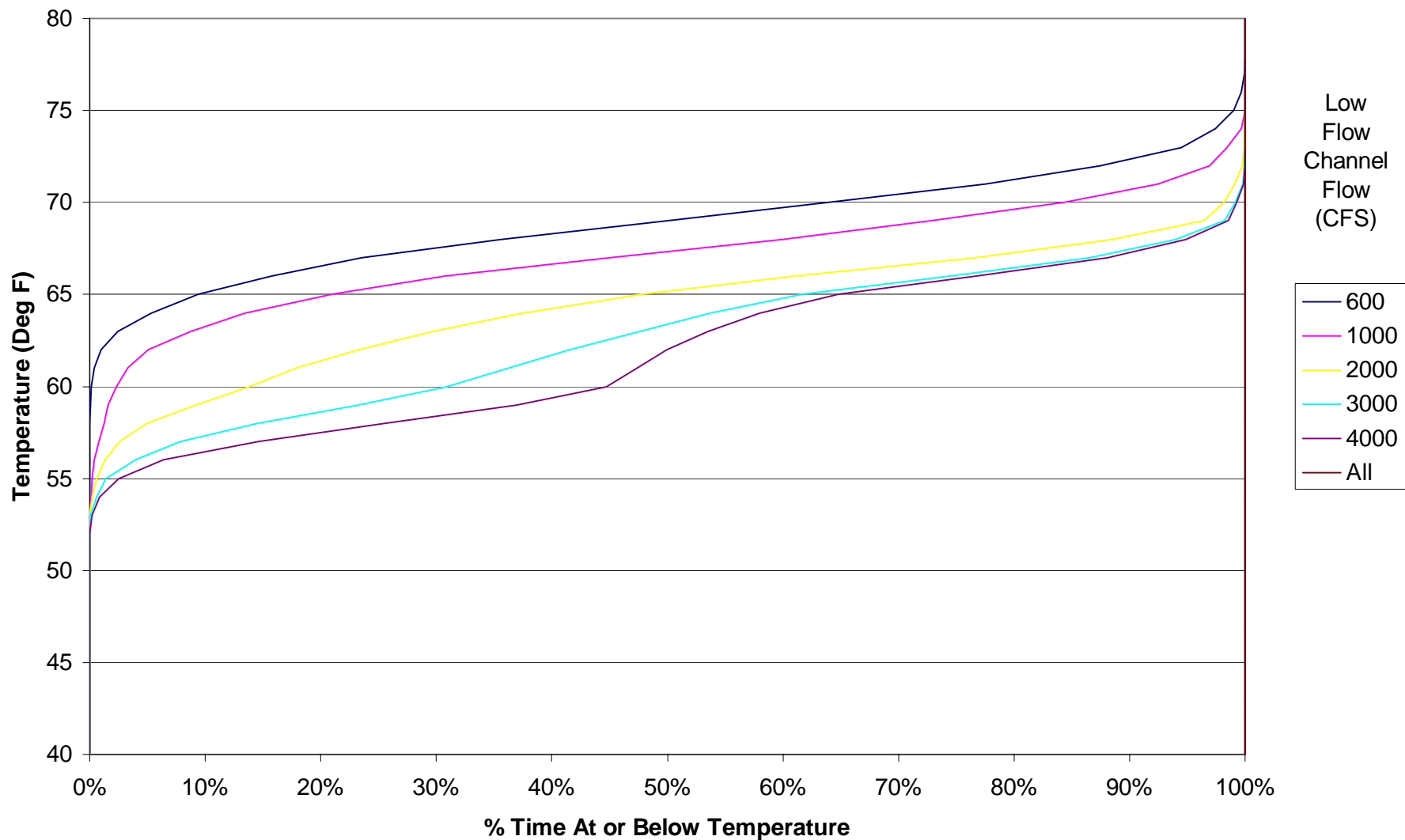
Analysis Procedure

- Developed a simple “screening” temperature model of the system
- Temperatures at Diversion Dam, Afterbay Return, and Honcutt Creek are computed
- Use this model to evaluate different scenarios for feasibility

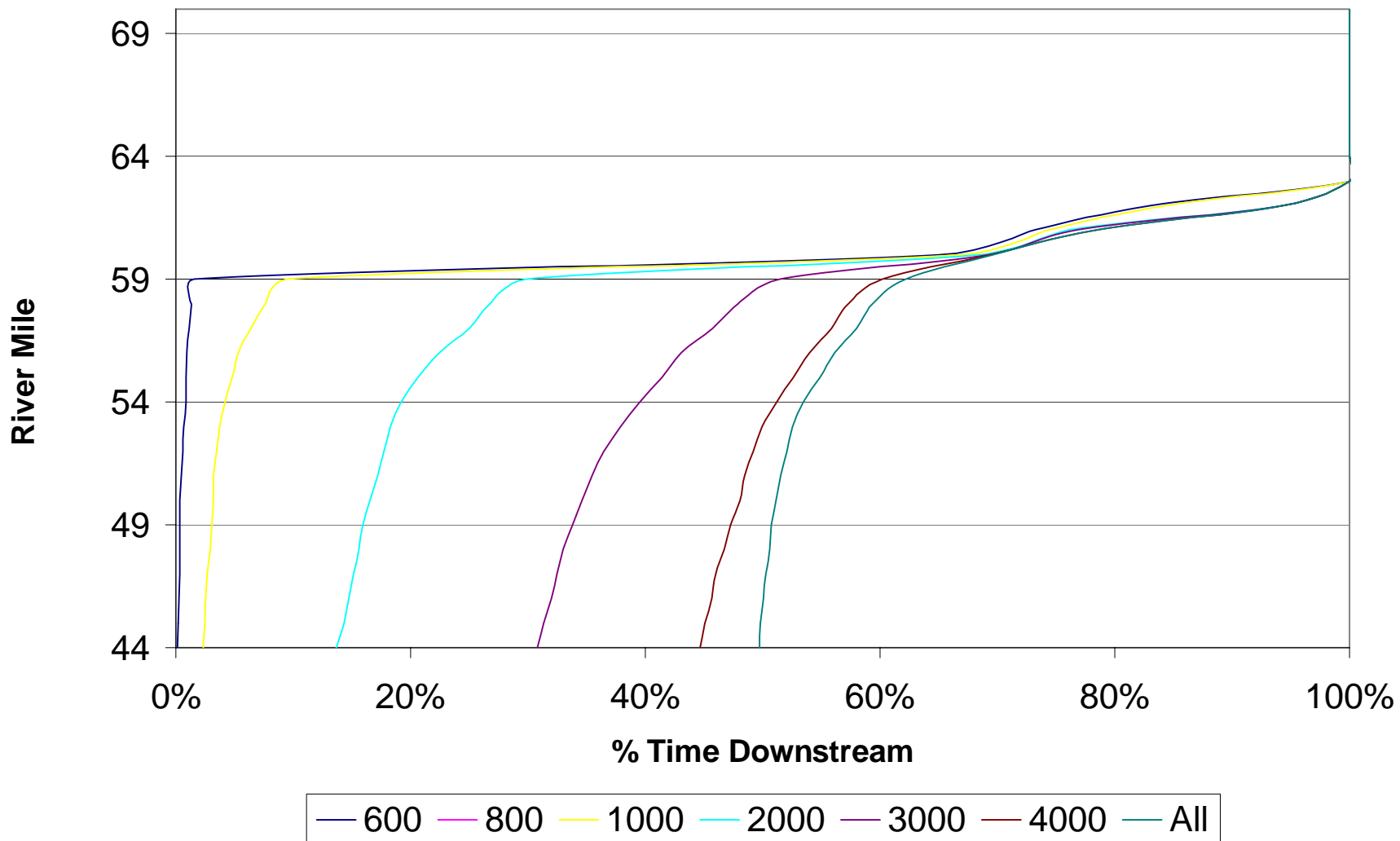
Screening Model Assumptions

- Use Existing Benchmark temperature simulation results (these are being updated)
- No change in flow in High Flow section (total release from Oroville unchanged)
- Temperature change/mile in High Flow section computed from benchmark data.
- Temperature change/mile in Low Flow section estimated based on change in High Flow section, flow in Low Flow section, and information from Scenario 17
- Afterbay Release Temperature does not change with flow

Feather River Temperature Honcutt Creek In August



Projected Location @ 60 in August (RM)



Next Steps

- Work with Environmental Workgroup to refine temperature and flow limits
- Update analysis with new benchmark results when available
- Define scenarios for detailed modeling for analysis of
 - Ability to meet different targets
 - Temperature results of different targets
 - Power generation impacts of different targets